Available online at www.sciencedirect.com

ScienceDirect

Taiwanese Journal of Obstetrics & Gynecology 50 (2011) 124–125

www.tjog-online.com

Research Letter

Pneumoperitoneum caused by perforation of pyometra associated with a lost intrauterine device and perforated malignancy of the sigmoid colon

Pi-Hua Chen [a], Hsien-Liu [b], Su-Long Lee [a], Chih-Yang Chang [a], Chi-Chang Chang [a,*]

[a] *Department of Obstetrics and Gynecology, E-DA Hospital, I-Shou University, Kaohsiung, Taiwan*
[b] *Department of General Surgery E-DA Hospital, I-Shou University, Kaohsiung, Taiwan*

Accepted 13 October 2009

Intrauterine devices (IUDs) have been plagued by many early and late complications, including uterine perforation and subsequent migration into adjacent structures. Perforation of the uterus by an IUD is a serious complication occurring in approximately 1 of 350 to 1 of 2,500 insertions. It is more common among older women with "lost" IUDs. This case illustrates that unusual phenomenon that a lost IUD can penetrate into the omentum. We herein report a case of acute peritonitis and pneumoperitoneum with perforation of the uterus associated with a lost IUD and perforation of a malignancy of the sigmoid colon.

A 68-year-old woman, Gravida 4, Para 4, presented to the emergency department with a 2-hour history of sudden, diffuse lower abdominal pain. Physical examination revealed an acutely ill-appearing patient with unstable vital signs, including a temperature of 37.8°C. The patient's abdomen was distended with marked rebounding tenderness and varying tympanic sound on percussion. Bowel sounds were sparse. Her family disclosed that the patient had received an insertion of a loop IUD at 30 years previously and had complaints of pelvic pain, difficulty defecating, and mucus and blood in the stool for the past 6 months.

Laboratory studies revealed a white blood cell count of 5,400/μL with a neutrophilic shift to the left (segmented: 84%; normal: 55–71%), hemoglobin of 6.8 g/dL (normal: 12–16 g/dL), and a C-reactive protein level of 144 mg/L (normal: <5 mg/L). Tests of liver and renal functions were normal, except for an alkaline phosphorylase level of 403 U/L.

Abdominal ultrasonography showed massive ascites and a plain X-ray of the abdomen revealed pneumoperitoneum with an object, which appeared to be an IUD present in the right lower quadrant of the abdomen (Fig. 1). Perforation of the gastrointestinal tract was suspected.

An emergent laparotomy was performed by a general surgeon under the diagnosis of gastrointestinal perforation with generalized peritonitis. Approximately 2,100 mL large amount of purulent discharge arising from a ruptured uterus was found in the abdominal cavity. A tear of approximately 10 cm in length was located in the fundus of the uterus with markedly necrotic serosa (Fig. 2). The purulent fluid was aspirated and samples were sent for anaerobic and aerobic culture. A total hysterectomy with bilateral salpingo-oophorectomy was performed by a gynecologist. The IUD identified as a Lippes loop was found tightly surrounded by omentum in the upper quadrant of the abdomen (Fig. 3), and a partial omentectomy was performed. A perforation in the sigmoid colon measuring 2 × 3 cm was found in the sigmoid colon. Necrotic serosa was identified and a colorectal specialist was consulted.

On further exploration, an annular, ulcerative, and perforated tumor measuring 8 × 10 cm was identified. Resection of the tumor and loop colostomy was performed.

Histological examination of the colon revealed moderately differentiated adenocarcinoma with metastases to regional lymph nodes, American Joint Committee on Cancer Stage III (T3N1Mx). Histological examination of uterus revealed pyometra with necrosis of the endometrium and no evidence of uterine malignancy. The patient was admitted to surgical intensive care unit because of septic shock. Suitable intravenous antibiotics were administered and she recovered 1 month after surgery.

Spontaneous perforation of the uterus is rare, with a reported incidence of 0.01–0.05% [1]. Severe intraabdominal complications may ensue if an IUD is lost in the abdominal cavity and not removed. Intraperitoneal IUDs do not necessarily produce symptoms but may intrude on neighboring

* Corresponding author. Department of Obstetrics and Gynecology, E-DA Hospital, I-Shou University, 1, Yi-Da Road, Jiau-shu Tsuen, Yan-Chau Shiang, Kaohsiung County, Taiwan.
E-mail address: gazilla0403@yahoo.com.tw (C.-C. Chang).

doi:10.1016/j.tjog.2009.10.004

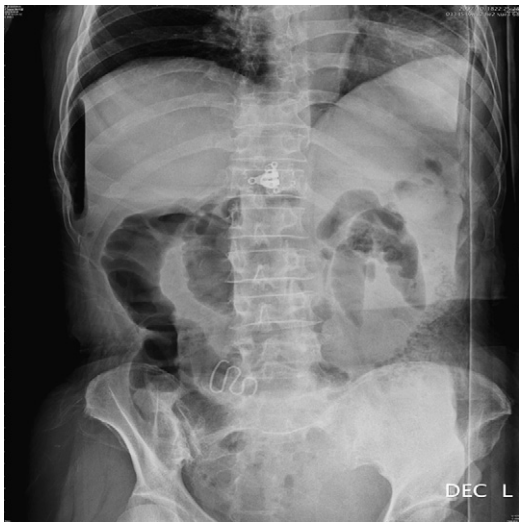

Fig. 1. X-ray of the abdomen reveals pneumoperitoneum and an intrauterine device located in the right lower quadrant.

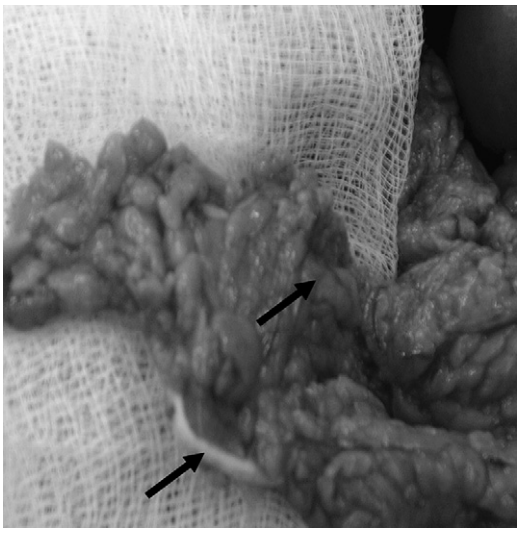

Fig. 3. Intrauterine device embedded in specimen of the omentum (arrow).

viscera, such as the bladder or intestines [2,3]. The complication of omental penetration may occur later. Laparotomy is indicated when acute peritonitis with uterine perforation is present. Portable X-ray may be helpful to locate the IUD if it is difficult to detect the location of IUD at the time of laparotomy. A fragmented IUD may induce erosion of the serosa of the sigmoid colon and then penetrate the adjacent loops of the colon, forming a colocolic hole or fistula [4]. Therefore, thorough examination of the whole abdominal cavity to find the lost IUD is critical.

The most common cause of pneumoperitoneum is perforation of the gastrointestinal tract. Other conditions, such as perforated pyometra, perforated liver abscess, and a ruptured necrotic lesion of a liver metastasis, may also present with pneumoperitoneum. In our review of the literature, we found other reports of ruptured pyometra presenting as pneumoperitoneum [5,6]. However the occurrence of pneumoperitoneum as a result of perforation of the uterus and colon cancer by a lost IUD is rare. The rate of preoperative pneumoperitoneum because of a perforated colonic neoplasm is approximately 26% [7]. Generalized fecal peritonitis in patients with colon malignancies impedes the course of postoperative chemotherapy, as is associated with a poor prognosis as revealed by clinical outcomes [8]. Although perforation of pyometra with pneumoperitoneum is an unusual cause of peritonitis, it should be considered in elderly women presenting with an acute abdomen. In summary, generalized peritonitis and pneumoperitoneum caused by the spontaneous perforation of pyometra is rare but should be considered in elderly women presenting with an acute abdomen. The case suggests that it should be routine to remove an IUD in menopausal women to avoid severe intraabdominal complications of a lost IUD.

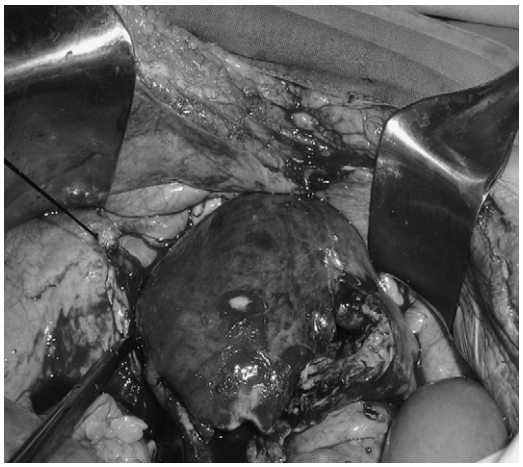

Fig. 2. Uterus as seen at laparotomy with perforation in the fundus.

References

[1] Mülayim B, Mülayim S, Celik NY. A lost intrauterine device. Guess where we found it and how it happened? Eur J Contracept Reprod Health Care 2006;11:47–9.
[2] Dietrick DD, Issa MM, Kabalin JN, Bassett JB. Intravesical migration of intrauterine device. J Urol 1992;147:132–4.
[3] McWhinney NA, Jarrett R. Uterine perforation by a Copper 7 intrauterine contraceptive device with subsequent penetration of the appendix. Case report. Br J Obstet Gynaecol 1983;90:774–6.
[4] Pirwany IR, Boddy K. Colocolic fistula caused by a previously inserted intrauterine device. Case report. Contraception 1997;56:337–9.
[5] Nakao A, Mimura H, Fujisawa K, et al. Generalized peritonitis due to spontaneously perforated pyometra presenting as pneumoperitoneum: report of a case. Surg Today 2000;30:454–7.
[6] Tsai MS, Wu MH. Images in clinical medicine. Pneumoperitoneum due to spontaneously perforated pyometra. N Engl J Med 2006;354:e23.
[7] Gullino D, Giordano O, Masella M, Lijoi C, De Carlo A The single-stage surgery of perforated colon carcinoma. Our experience of 46 cases. Minerva Chir 1999;54:127–37 [Article in Italian].
[8] Hollender LF, Meyer C, Calderoli H, Zavaletta D Generalized fecal peritonitis. Etiopathogenic and therapeutic considerations in 30 cases (author's translation). J Chir (Paris) 1977;113:327–36.